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JOHN W. LUNDSTROM  
603 CRESTVIEW DR.  
GLENDDORA, CA 91741

EXAMINER

KRAMSKAYA, MARINA

ART UNIT	PAPER NUMBER
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2858

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Please find below and/or attached an Office communication concerning this application or proceeding.



## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation of a blunted tip which defines a flat shallowly tapered periphery, has not been described in the specification in such a manner that would reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The drawing merely show a blunted tip, and there is no support for a periphery in the tip in the drawings or the specification.

### ***Claim Objections***

3. Claim 8 is objected to because of the following informalities: there appears to be a grammatical in section (viii) of claim 8. Following changes are suggested:

“viii) said second section has a cylindrical connector is applied thereto”

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Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cramer, US 6,401,742, in view of Wood et al., US 6,536,263.

As per Claim 5, Cramer discloses a conductive metallic soil penetrating electrode for use in making an electrical connection with soil (52) for the purpose of measuring soil electrical parameters (electrical potential: column 2, line 17) comprising in combination:

a) said electrode having an axially longitudinally elongated body defining first (combination of 31 & 33) and second (35) integral sections, the first section having ground engaging slim taper (probe tip 31) along the majority of its length, the second section being substantially cylindrical along the majority of its length (35, see FIG. 2),

b) said first section having a primary end defining a tip (probe tip 31), and a secondary end forming a shoulder (34) which extends outwardly away from a junction defined by said sections,

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c) said first section at said junction having an overall cross dimension which exceeds the diameter of said second section proximate the junction (see FIG. 2, which shows actual size),

d) said electrode configured to receive radio frequency energy (AC voltage from the control unit **22**) at said second section (**35**),

e) the tip having a diameter of about 3/16 inch (see FIG. 2, actual size view).

Cramer does not explicitly disclose

the ratio of the overall cross dimension of the first section to the second section diameter being about 4/3, and

e) the tip being blunted to define a flat end and a shallowly tapered periphery.

Wood discloses a soil (i.e. sand) penetrating electrode with a the ratio of the overall cross dimension of the first section to the second section diameter being greater than one (see column 7, lines 17-20), and

e) the tip being blunted (FIG. 6-7) to define a flat end (see column 7, lines 17-20) and defines a shallowly tapered periphery in the soil when it is inserted.

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a blunted tip probe with the ratio of the probe tip being greater than the shaft, as taught by Wood, in the electrode device of Cramer, in order to drive the probe a desired distance into a dense material such as sand.

Although Cramer in view of Wood, do not teach the particular ration between overall cross dimension of the first section to the second section diameter to be about 4/3, MPEP 2144.05 states:

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**A. Optimization Within Prior Art Conditions or Through Routine Experimentation**

Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be prima facie obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.); see also Peterson, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) (Claimed elastomeric polyurethanes which fell within the broad scope of the references were held to be unpatentable thereover because, among other reasons, there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions.). For more recent cases applying this principle, see Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed.Cir. 1990); and In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to optimize the ratio of the first and second sections by routine experimentation in order to obtain a probe that can be driven into a dense substance such as sand.

As per Claim 8, Cramer as modified discloses the electrode of claim 5

Cramer further discloses the electrode characterized by at least two of the following:

- i) said overall cross dimension is about 1/2 inch
- ii) said first section has an overall length of about 3 inches (see FIG. 2, where the first section, combination of **31** and **33**, has a length of 4 inches, interpreted as "about 3 inches" for the purposes of this examination),
- iii) said taper is about 3.0 degrees
- iv) the diameter of the second section proximate the junction is about 3/8 inch

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v) the diameter of the second section along the majority of its length is about 3/8 inch

vi) the second section has a length of about 3 inches (see FIG. 2, where the second section, **35**, has a length of about 3 inches)

viii) said second section has a cylindrical connector applied thereto

viii) said second section has a cylindrical connector is applied

ix) the first section is driven into the earth to a level proximate said junction.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marina Kramskaya whose telephone number is (571)272-2146. The examiner can normally be reached on M-F 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571)272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Marina Kramskaya  
Examiner  
Art Unit 2858



MK



ANDREW H. HIRSHFELD  
SUPERVISOR & SENIOR EXAMINER  
TECHNOLOGY CENTER 2800